

UARS Re-Entry Prediction and Analysis

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The National Aeronautics and Space Administration (NASA) deployed the Upper Atmosphere Research Satellite (UARS) from the Space Shuttle payload bay during the STS-48 mission in September, 1991. The 5700 kg satellite was decommissioned in December, 2005 and was maneuvered into a lower altitude orbit to shorten its on-orbit lifetime to reduce the probability of a debris producing accidental collision. The satellite reentered the Earth's atmosphere over the Pacific Ocean on September 24, 2011. Analysis by NASA's Orbital Debris Program Office using the ORSAT software predicted that approximately two dozen fragments from UARS would survive reentry to reach the ground. This presentation will discuss the reentry predictions made in the days prior to the reentry and compare the UARS reentry with other historical reentries. It will also present the results of the ORSAT analysis showing predicted surviving reentry objects.